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DATALOG FOR ENTERPRISE SOFTWARE: FROM INDUSTRIAL APPLICATIONS TO RESEARCH (INVITED TALK)

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LogicBlox is a platform for the rapid development of enterprise applications in the domains of decision automation, analytics, and planning. Although the LogicBlox platform embodies several components and technology decisions (e.g., an emphasis on software-as-a-service), the key substrate and glue is an implementation of the Datalog language. All application development on the LogicBlox platform is done declaratively in Datalog: The language is used to query large data sets, but also to develop web and desktop GUIs (with the help of pre-defined libraries), to interface with solvers, statistics tools, and optimizers for complex analytics solutions, and to express the overall business logic of the application. We believe that Datalog is at the sweet spot of the expressiveness/convenience trade-off. The language is high-level enough to allow fast development for increased productivity, and expressive enough to support implementing complex applications without a need to resort to imperative code.

The LogicBlox version of Datalog, LB-Datalog, is heavily influenced by several ideas and advanced Datalog extensions proposed by the research community. LB-Datalog is a Datalog with integrity constraints, state and incremental update, default values, higher-order predicates, existentially quantified head variables, constraint stratification, and more. Additionally, LogicBlox has active collaborations with several academic researchers who work on a variety of projects in nearly every aspect of LB-Datalog.

The goal of this talk is to present both the business case for Datalog and the fruitful interaction of research and industrial applications in the LogicBlox context.